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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* JOSEPH K. BELANOFF

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Appeal 2010-006287
Application 10/772,919
Technology Center 1600

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Before DONALD E. ADAMS, JEFFREY N. FREDMAN, and STEPHEN WALSH, *Administrative Patent Judges*.

WALSH, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

This is an appeal under 35 U.S.C. § 134(a) involving claims to a method of ameliorating symptoms of postpartum psychosis. The Patent Examiner rejected all the claims for obviousness and two claims for lack of written description. We have jurisdiction under 35 U.S.C. § 6(b).

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

## STATEMENT OF THE CASE

Claims 1-11 and 15, which are all the pending claims, are on appeal (App. Br. 3). Claims 1, 3 and 4 are representative and read as follows:

1. A method of ameliorating the psychotic symptoms of a patient having postpartum psychosis, comprising administering an amount of a glucocorticoid receptor antagonist effective to ameliorate the psychotic symptoms of the postpartum psychosis, with the proviso that the first psychotic symptoms arise within nine months of childbirth, that the patient has never suffered any psychotic condition not triggered by childbirth, and that the patient did not suffer from psychosis prior to parturition.

3. The method of claim 1, wherein the glucocorticoid receptor antagonist comprises a steroidal skeleton with at least one phenyl-containing moiety in the 11-β position of the steroidal skeleton.

4. The method of claim 3, wherein the phenyl-containing moiety in the 11-β position of the steroidal skeleton is a dimethylaminophenyl moiety.

The Examiner rejected the claims as follows:

- claims 3 and 4 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement (Ans. 5-7);
- claims 1-6 and 9-11 under 35 U.S.C. § 103(a) as unpatentable over Schatzberg '349[2] (Ans. 8-9);
- claim 15 under 35 U.S.C. § 103(a) as unpatentable over Schatzberg '349 and Belanoff[3] (Ans. 9-10);
- claims 1-6 and 9-11 under 35 U.S.C. § 103(a) as unpatentable over Schatzberg '173[4] (Ans. 11-12);

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[2] Schatzberg et al., US 6,150,349, issued Nov. 21, 2000.
[3] Belanoff et al., *Milepristone Treatment for Psychotic Depression*, 21 J. CLIN. PSYCHOPHARMACOL 516-521 (2001).

• claim 15 under 35 U.S.C. § 103(a) as unpatentable over "Schatzberg et al. as applied to claims 1-11 above" [sic, Schatzberg '173], and Belanoff (Ans. 13-14);

• claim 7 under 35 U.S.C. § 103(a) as unpatentable over Schatzberg '349, Stowe,[5] and Morgan[6] (Ans. 14-15); and

• claim 8 under 35 U.S.C. § 103(a) as unpatentable over Schatzberg '349, Stowe, and Gebhard[7] (Ans. 15).

We reverse the written description rejection and affirm the obviousness rejections.

WRITTEN DESCRIPTION

*The Issue*

The Examiner identified these issues: "(1) what is meant by a 'steroidal skeleton' and (2) what is meant by a 'phenyl-containing moiety' and a dimethylaminophenyl moiety." (Ans. 5.) According to the Examiner, the Specification "does not provide adequate support" for those terms. (*Id.* at 6.) "In particular . . . Applicant's specification as originally filed does not contain an example of what is meant by a 'steroidal skeleton' or regarding the 'moieties['] of 'phenyl containing' and [] 'dimethylaminophenyl moiety' what other elements are included or excluded." (*Id.*) In sum, the Examiner found that the Specification failed "to reasonably convey to one skilled in

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[4] Schatzberg et al., US 6,362,173 B1, issued Mar. 26, 2002.
[5] Zachary N. Stowe, MD and Charles B. Nemeroff, MD, PhD, *Women at risk for postpartum-onset major depression*, 173 AM. J. OBSTET GYNECOL 639-645 (1995).
[6] Morgan et al., *Discovery of Potent, Nonsteroidal, and Highly Selective Glucocorticoid Receptor Antagonists*, 45 J. MED. CHEM. 2417-2424 (2002).
[7] Gebhard, US 6,011,025, issued Jan. 4, 2000.

the relevant art that Applicants [sic] had possession of the concept of a 'steroidal skeleton' with at least one 'phenyl containing moiety' in the 11-13 position of the steroidal skeleton and the phenyl-containing moiety in the 11-13 position of the steroidal skeleton is a 'dimethylaminophenyl moiety'." (*Id.* at 7.)

Appellant contends that "GRAs [glucocorticoid receptor antagonists] having a phenyl-containing moiety at the 11-β position of the steroidal backbone are not novel," and that "using art-accepted terminology, is sufficiently specific to lead one of skill to that class of compounds." (App. Br. 23.) According to Appellant, "[t]he Examiner has yet to explain why one of skill would not immediately envision a steroidal compound with an 11-β phenyl moiety, given the familiar IUPAC nomenclature." (*Id.* at 26.)

The issues with respect to this rejection are whether a person of ordinary skill in the art would credit Appellant with possession of GRAs having a steroidal skeleton, GRAs having a phenyl containing moiety in the 11-13 position of a steroidal skeleton, and GRAs having a dimethylaminophenyl moiety in the 11-13 position of a steroidal skeleton.

*Findings of Fact*

1. The ordinary meaning of "skeleton" includes:

> 4 a : something forming a structural framework
> b : the straight or branched chain or ring of atoms that forms the basic structure of an organic molecule
>
> (merriam-webster.com/dictionary/skeleton, accessed Sept. 30, 2010).

2. At the time the Application was filed, position numbering was an art-accepted convention for labeling the atoms in molecules having a

steroid structure. (IUPAC-IUB 1971 Definitive Rules For Steroid Nomenclature at 287, Appellant's Exhibit I.)

3. The IUPAC-IUB Joint Commission on Biochemical Nomenclature, The Nomenclature of Steroids, Recommendations 1989,[8] provided this definition before the Application was filed:

> 3S-1.0. Definition of steroids and sterols
> Steroids are compounds possessing the skeleton of cyclopenta[α]phenanthrene or a skeleton derived therefrom by one or more bond scissions or ring expansions or contractions. Methyl groups are normally present at C-10 and C-13. An alkyl side chain may also be present at C-17. Sterols are steroids carrying a hydroxyl group at C-3 and most of the skeleton of cholestane. Additional carbon atoms may be present in the side chain.

4. At the time the Application was filed, "moiety" meant a "part of a molecule." (IUPAC Compendium of Chemical Technology, Appellant's Exhibit H.)

*Principles of Law*

The amount of description needed to meet the written description requirement can vary with the scientific and technologic knowledge already in existence. *Capon v. Eshhar*, 418 F.3d 1349, 1357 (Fed. Cir. 2005).

*Analysis*

Applying the ordinary meaning of "skeleton" to the known steroid structure, we find no reason to think a person of ordinary skill would have needed more evidence to agree that Appellant had possession of compounds comprising claim 3's "steroidal skeleton." (FF1, 2.) We also note that

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[8] From www.chem.qmul.ac.uk/iupac/steroid/#Sint.html#int, accessed Sept. 27, 2010.

"steroid skeleton" was a recognized term in the art when the Application was filed. (FF3.) As to the Examiner's points related to moieties at positions 11-13, Appellant provided copies of pages from IUPAC-IUB 1971 Definitive Rules For Steroid Nomenclature showing that the numbering convention for steroids was known in the art. (FF2.)

The Answer states that "[i]t is unclear to the examiner if there is another part of the moiety that is undisclosed or if the other half of the moiety is the 'steroidal skeleton.'" (Ans. 5.) First, Appellant provided the art-accepted definition of "moiety" as "a part of a molecule" (FF4), which is sufficient evidence that a person of skill in the art would have understood the term. Second, the rejection adhered to the wrong legal standard after Appellant's evidence was made of record. An apparent deficiency in the disclosure may be enough to support a prima facie case if it reasonably appears that a person of ordinary skill in the art would find the missing matter necessary. *In re Alton*, 76 F.3d 1168, 1175 (Fed. Cir. 1996). But after an Applicant submits evidence or argument in response, the totality of the evidence must be reassessed. *Id.* The written description question does not turn on whether the term moiety "is unclear to the examiner." (Ans. 5.) It turns instead on whether a person of ordinary skill in the art would have understood the term, and credited Appellant with possession of compounds so defined. Although the rejection invoked the principle that the knowledge and level of skill in the art are critical to this issue (Ans. 6, citing *Fujikawa v. Wattanasin*, 93 F.3d 1559, 1571 (Fed. Cir. 1996)), it did not give due weight to Appellant's evidence of knowledge in the art. The ordinary meaning of the terms used in the Specification, and the facts Appellant placed in evidence, show that a person of ordinary skill in the art had the

knowledge needed to immediately envisage the compounds defined in the claims and would have done so.

Appellant also compares the facts here to the facts in *Ex parte Barrick*, 84 USPQ 142 (BPAI 1948); *In re Fuetterer*, 319 F.2d 259 (CCPA 1963); and *In re Herschler*, 591 F.2d 693 (CCPA 1979). (App. Br. 21-22.) The comparisons are apt. Unlike in the method found to lack description in *Univ. Rochester v. G.D. Searle & Co., Inc.*, 358 F.3d 916 (Fed. Cir. 2004), compounds to be used in Appellant's method were known in the prior art.

The evidence of existing knowledge in the art refutes the rejection.

OBVIOUSNESS

*The Issue*

The Examiner found that Schatzberg taught treating psychosis with particular glucocorticoid receptor antagonists [GRAs] and taught that postpartum psychosis was one of the psychotic disorders treatable with the GRAs. (Ans. 8-9.) The Examiner concluded: "[i]t would have been obvious to employ the recited GR antagonists for amelioration of the symptoms of postpartum psychosis motivated by the teaching of Schatzberg et al. who teach that GR antagonists ameliorate psychosis and according to Schatzberg et al. the DSM IV includes postpartum psychosis in its categorization of the symptomology of psychosis in general." (*Id.* at 9.)

Appellant contends that the "prior art discloses that some, but not all, psychotic conditions are due to glucocorticoid dysregulation, and thus amenable to treatment with a GRA." (App. Br. 8.) "Appellants [sic] have submitted rebuttal evidence teaching away from treating a postpartum mother with a GRA, because glucocorticoid levels fall dramatically after birth." (*Id.* at 9, 17-18.) "Applicants [sic] urge that the Patent Office has not

established that the prior art suggests that PPP [postpartum psychosis] is caused by glucocorticoid dysregulation." (*Id.*) According to Appellant, "Schatzberg discloses treatment of psychotic symptoms associated with glucocorticoid regulatory dysfunction, not psychosis generally" (*id.*), and "[w]hile PPP is included in a general disclosure of conditions that give rise to psychotic symptoms, nowhere does Schatzberg state that the psychotic aspect of PPP results from glucocorticoid dysregulation" (*id.* at 12).

Appellant further contends that "to have a reasonable expectation of success in treating PPP with a GRA . . . there must be some teaching, suggestion or knowledge common among those in the art that PPP is associated with glucocorticoid regulatory dysfunction." (*Id.* at 13.)

Appellant's Exhibits are said to confirm that PPP was not well understood. (*Id.*) The Belanoff Declaration[9] is said to "demonstrate that GRAs are not effective for treating psychosis generally." (*Id.*)

The issues with respect to this rejection are:

did Schatzberg disclose that postpartum psychosis can be treated with a GRA;

how should Schatzberg's disclosure that schizophrenic patients cannot be treated with GRAs be weighed;

does the fact that cortisol levels fall after delivery teach away from treating postpartum psychosis with a GRA;

how should the Belanoff Declaration be weighed;

do the Elenkov[10] or Hendrick[11] papers on postpartum conditions teach away from Schatzberg's method for treating postpartum psychosis?

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[9] Declaration of Dr. Joseph Belanoff, submitted January 11, 2000.

*Further Findings of Fact*

4. We adopt the Examiner's findings concerning the scope and content of the prior art.

5. Schatzberg[12] disclosed: "[t]oday it is known that psychotic patients can be distinguished from other psychiatric problems in that they have a glucocorticoid regulatory dysfunction." (Schatzberg '349, col. 1, ll. 51-53.)

6. Schatzberg stated that "[t]he term 'psychotic' as used herein refers to a psychiatric condition in its broadest sense, as defined in the DSM-IV . . . and described below." (*Id.* at col. 5, ll. 37-39.)

7. Schatzberg stated that "[t]he term 'psychosis' refers to a psychiatric symptom, condition or syndrome in its broadest sense, as defined in the DSM-IV . . ., comprising a 'psychotic' component, as broadly defined above." (*Id.* at col. 6, ll. 25-28.)

8. According to Schatzberg, "the current medical view, as embraced by the DSM-IV, supra, does not include [schizophrenia and manic states] as including psychosis." (*Id.* at col. 6, ll. 42-47.)

9. According to Schatzberg,

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[10] Ilia J. Elenkov et al., *IL-12, TNF-α, and Hormonal Changes during Late Pregnancy and Early Postpartum: Implications for Autoimmune Disease Activity during These Times*, 86 J. CLIN. ENDOCRIN. & METAB. 4933-4938 (2001).

[11] Victoria Hendrick et al., *Hormonal Changes in the Postpartum and Implications for Postpartum Depression*, 39 PSYCHOSOMATICS 93-101 (1998).

[12] Citations are to Schatzberg '349. Schatzberg '173 describes itself as a continuation of Schatzberg '349, and is therefore cumulative with Schatzberg '349. *See* item (63), cover page, Schatzberg '173.

> [t]he dexamethasone suppression (DS) test indicates a dysfunction in the glucocorticoid regulatory feedback pathway . . . . Most psychotic patients have a glucocorticoid regulatory dysfunction (as indicated by non-responsivenss in the DS test). In contrast, patients with, e.g., schizophrenia . . . and manic states, do not have glucocorticoid regulatory dysfunction (as indicated by non-responsiveness in the DS test).

(*Id.* at col. 6, ll. 54-67.)

10. Schatzberg disclosed:

> [t]his invention pertains to the discovery that agents that can inhibit a biological response caused by an agonist-occupied glucocorticoid receptor (GR) are effective for ameliorating the mental disorder, or syndrome, of psychosis. Because the condition of psychosis can be associated with or caused by a variety of conditions and disease processes, the methods of the invention also are used to ameliorate the psychotic component of pathologies or conditions involving psychosis.

(*Id.* at col. 7, ll. 49-57.)

11. Schatzberg taught: "[t]he psychosis ameliorated in the methods of the invention encompasses a broad range of mental conditions and symptoms, as broadly described in the DSM-IV." (*Id.* at col. 12, ll. 44-47.)

12. Schatzberg taught that "[a] condition or illness involving psychosis can be classified as a psychotic disorder not otherwise specified" and "[e]xamples include: postpartum psychosis . . . ." (*Id.* at col. 15, ll. 46-64.)

13. Appellant provided a "Declaration of Dr. Joseph Belanoff Under 37 C.F.R. § 1.132," executed Jan. 11, 2000, and apparently filed in Application No. 09/244,457. (Decl. 1, 16.)

14. Application No. 09/244,457 issued to inventors Schatzberg and Belanoff as U.S. Patent No. 6,150,349. (Item (21), cover page, Schatzberg '349.)
15. The Belanoff Declaration addressed a rejection under § 103 based on Ravaris, van der Lely, Piazza and Behl, said to have been entered by the Examiner in Application No. 09/244,457. (Decl. ¶ 4.)
16. The Belanoff Declaration presented evidence said to show that "the invention was unpredictable." (Decl. ¶ 5.)
17. We understand that where the Belanoff Declaration referred to "the invention," it meant the invention being prosecuted in Application No. 09/244,457, i.e., the invention disclosed and claimed by Schatzberg '349.
18. The Belanoff Declaration stated that mifepristone was effective in treating "Psychotic Major Depression [PMD]" (Decl. ¶ 6), but not effective in treating schizoaffective disorder (Decl. ¶ 7).
19. Elenkov stated that "[t]he third trimester of pregnancy and the early postpartum period are also known to be associated with abrupt changes of several hormones, including in [sic] tandem increases and decreases, respectively, of . . . cortisol . . . ." (Elenkov 4933.)
20. Elenkov's data showed that by 3-6 weeks after delivery, cortisol levels returned to the same levels as in nonpregnant age-matched controls, i.e., control 109.1±12.2 compared to postpartum 134.2±16.9, no statistical difference (<0.001). (*Id.* at 4935, Table 1.)
21. Elenkov stated: "[t]he substantially increased urinary free cortisol excretion during the third trimester of pregnancy *that returned to normal levels 3 wk after delivery* indicates that late pregnancy is a

state of adrenocortical activation, probably caused by the large amounts of CRH secreted by the placenta." (*Id.* at 4936, emphasis added.)

22. Hendrick stated: "[c]ortisol levels peak in late pregnancy as a result of placental production of corticotrophin releasing hormone, and fall abruptly at delivery." (Hendrick 97.)

*Principles of Law*

A prior art reference is said to teach away from an Applicant's invention "when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994).

*Analysis*

Appellant's arguments regarding the obviousness of claims 1-6 and 9-11 focus on purported deficiencies in the Schatzberg disclosure without reference to particular claims. Appellant refers back to the same arguments to contest the rejections of dependent claims 7, 8 and 15, without reference to particular limitations of the claims. (App. Br. 18-19.) We therefore select claim 1 as representative for the obviousness issues. 37 C.F.R. § 41.37(c)(1)(vii). We refer to Schatzberg '349 because Schatzberg '173 is duplicative. Our decisions regarding rejections founded on Schatzberg '349 apply to those founded on Schatzberg '173 for the same reason.

We agree with Appellant that Schatzberg disclosed that some, but not all, psychotic conditions are due to glucocorticoid dysregulation, and thus amenable to treatment with a GRA. (FF 5.) Schatzberg explained in detail that, e.g, schizophrenia is a different condition and is not treatable with

GRAs, in contrast to the conditions listed in the DSM IV. (FF 8, 9.) The evidence supports the Examiner's finding that Schatzberg taught treating postpartum psychosis with GRAs. (FF 10-12.)

We do not agree with Appellant's unpredictability argument. When Schatzberg and Belanoff filed the application that led to the Schatzberg and Belanoff patent, i.e. Schatzberg '349, there may have been unpredictability. The Belanoff Declaration was filed in Schatzberg and Belanoff's application number 09/244,457, which issued to Schatzberg and Belanoff as Patent No. 6,150,349 patent. (6,150,349 patent file, Paper 10.) The Belanoff Declaration describes itself as presenting evidence that the invention disclosed and claimed by Schatzberg and Belanoff was unpredictable. (Decl. ¶¶ 6, 7.) Specifically, the Declaration explains that schizophrenia was found not treatable with GRAs, where psychosis was found treatable. (*Id.*) Schatzberg '349 disclosed that difference to the public at least when the patent issued on Nov. 21, 2000. A showing of unpredictability in the art as of Feb. 4, 1999, the filing date for the Schatzberg and Belanoff application, does not inure to Appellant Belanoff's Application filed Feb. 2, 2004, because after the Schatzberg and Belanoff patent issued, it was no longer unpredictable that GRAs were effective in treating psychosis and not effective in treating schizophrenia. In fact, according to Schatzberg '349, the differences between schizophrenia or manic states and psychosis (col. 1, ll. 35-60) mean that "schizophrenia and manic states are not within the scope of the definition of 'psychosis' as defined either by the medical profession, or as used herein, and thus are not treated by the methods of the invention" (col. 1, ll. 57-60, parentheses deleted). In contrast, according to Schatzberg '349, postpartum psychosis is within the definition. (FF 11, 12.)

Appellant has not shown that the prior art taught away from treating postpartum psychosis with GRAs. We agree that the Elenkov and Hendrick papers disclose that cortisol levels are higher than normal during the third trimester of pregnancy, and fall after delivery. (FF 19, 22.) According to Elenkov, cortisol returns to normal levels after pregnancy. (FF 20-21.) Appellant states: "[t]he art thus indicates that cortisol levels fall dramatically after birth." (App. Br. 17.) We find no teaching away in that evidence. Appellant does not explain why a psychotic patient with normal levels of cortisol would not be thought treatable with Schatzberg's method, nor do we find any such teaching in Schatzberg. Although Appellant then argues that "[a]bsent some evidence that glucocorticoid regulatory dysfunction was linked with the psychotic symptoms of PPP, one of skill would not be motivated to treat a postpartum mother with an inhibitor of cortisol signaling," (*id.* at 17-18), that argument ignores the Schatzberg '349 explicit teaching linking glucocorticoid regulatory dysfunction with the psychotic symptoms of PPP (FF12).

CONCLUSIONS

The evidence of record does not support the Examiner's finding that a person of ordinary skill in the art would not credit Appellant with possession of GRAs having a steroidal skeleton, a phenyl containing moiety in the 11-13 position of a steroidal skeleton, and a dimethylaminophenyl moiety in the 11-13 position of a steroidal skeleton.

Schatzberg disclosed that postpartum psychosis can be treated with a GRA.

Schatzberg's distinctions between schizophrenia and psychosis are not evidence of unpredictability for Appellant's method.

The Belanoff Declaration receives little weight because its evidence pertains to an issue that has not been unpredictable since the Schatzberg '349 patent issued in 2000, more than three years before Appellant filed this Application.

The fact that cortisol levels return to normal after delivery does not teach away from treating postpartum psychosis with a GRA.

SUMMARY

We reverse the rejection of claims 3 and 4 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

We affirm the rejection of claims 1-6 and 9-11 under 35 U.S.C. § 103(a) as unpatentable over Schatzberg '349.

We affirm the rejection of claim 15 under 35 U.S.C. § 103(a) as unpatentable over Schatzberg '349, and Belanoff.

We affirm the rejection of claims 1-6 and 9-11 under 35 U.S.C. § 103(a) as unpatentable over Schatzberg '173.

We affirm the rejection of claim 15 under 35 U.S.C. § 103(a) as unpatentable over Schatzberg '173, and Belanoff.

We affirm the rejection of claim 7 under 35 U.S.C. § 103(a) as unpatentable over Schatzberg '349, Stowe, and Morgan.

We affirm the rejection of claim 8 under 35 U.S.C. § 103(a) as unpatentable over Schatzberg '349, Stowe, and Gebhard.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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